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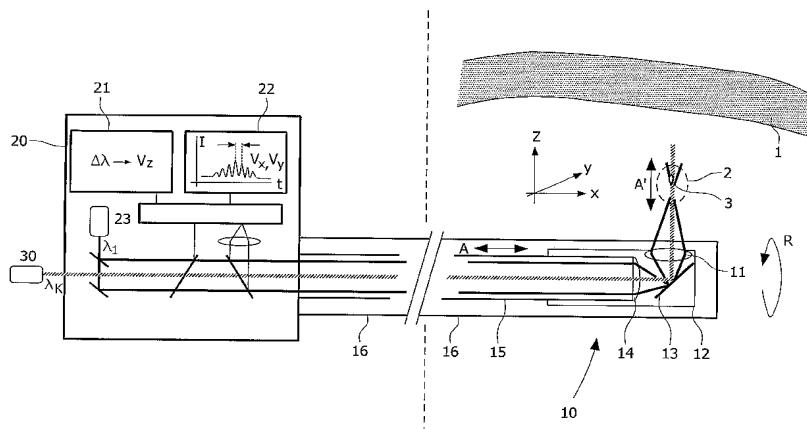
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(54) Title: MEANS FOR PERFORMING MEASUREMENTS IN A VESSEL



(57) Abstract: The invention relates to a facility that can be used, in particular, to measure the flow conditions in a blood vessel. The facility comprises a catheter (16) having a bundle (15) of optical waveguides that connects control and measurement facilities (20) outside the body with an optical unit (10) at the catheter tip. The light ( $\lambda_K$ ) generated by a cavitation light laser source (30) is beamed via the catheter (16) and the optical unit (10) into a focus region (2) in the vessel lumen, where it generates cavitation bubbles (3). The movement of the cavitation bubbles (3) with the blood flow is determined by the particle-measuring unit (20) that is based, for example, on phase-Doppler anemometry and/or the Doppler shift. As a result of suitable design of the optical unit (10), the focus region (2) can be displaced as desired radially and rotationally inside the vessel so that a vessel cross section can be scanned in a spatially resolved way. Furthermore, a spectral analysis of the light arriving from the focus region (2) is possible in order, for example, to analyze the chemical composition in this region. The reaching of the vessel wall (1) can be detected by the moving focus region (2) and used for a vessel measurement and/or to switch off the cavitation light laser (30).



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